US AIR FORCE MEDICAL SERVICE

DIGEST

Summer 1991
Vol. 42, No. 2

Welcome Home!

Returning Air Force medics tell their stories **(see page 12)**

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Front cover: On March 8, 1991, family and friends gathered at Langley AFB, Va., to greet their loved ones returning from Desert Storm.

Message from the Surgeon General

Rising Costs and Shrinking Budgets Challenge Air Force Medicine

This will be my last message to you as your surgeon general. It is rewarding to lead and work with the outstanding men and women of the Air Force Medical Service; you are the finest health care professionals in the world. I know that your talent, commitment and compassion will continue to nurture the Air Force family.

The challenges of the future demand the best of your knowledge and skills. Rising health care costs and shrinking budgets certainly will impact Air Force medicine; it's already happening. Patient cost-sharing is receiving greater emphasis, through increased CHAMPUS deductibles and discussion about implementing "user fees." Increasing attempts by DOD and Congress to centralize is another sequela of rising costs. Ironically, health care management decisions are most effectively made at the local level.

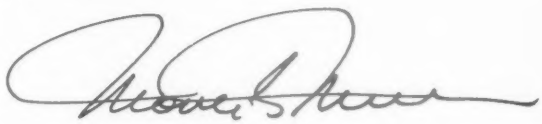
Our medical military construction program is feeling the pinch of fiscal constraints. With an average facility life cycle of 50-plus years, it is difficult for us to adapt quickly to changing trends in demographics, technology and medical practice. This challenge will remain as we strive to reduce the current facility life cycle.

Efforts at better resource management will continue as costs rise. Diagnosis Related Groups and Total Quality are but two of the many different approaches being used to produce more cost-effective quality health care. Air Force initiatives such as the CHAMPUS Alternate Use and Management Efficiency programs are helping us contain costs. Air Force managed care holds the best solution to the need for maintaining quality while conserving resources. Although fine-tuning our resource management is a must in these high-priced times, we must constantly insure that clinical considerations come first when making decisions that affect our patients.

High costs and modest budgets increase our need for better recruiting and retention of our health care professionals. Without adequate manning, we can't provide direct care, which is less expensive and of higher quality than most civilian care, to all our patients who prefer it. Our dilemma is that rising salaries in the private sector make competing for personnel resources increasingly difficult.

Current economics also focus greater emphasis on health promotion. Our investment in a strong Air Force health promotion program will ultimately mean a better quality of life for our people, and hopefully, a reduced demand for health care in later years.

The Air Force Medical Service will continue to face these and other challenges in the coming years. I hope that in some small way I made this task easier for you during the past three years. I will miss being a part of your superb team, but the Air Force Medical Service is in good hands—yours. Godspeed to all of you. May the patient always be the most important person in your career.



MONTE B. MILLER
Lieutenant General, USAF, MC
Surgeon General

Caring for the Air Force Family

Come Home to the Fisher House

Capt. Susan C. Loveland, MSC

"The only gift is a portion of thyself." Philanthropist Zachary Fisher uses these words of Ralph Waldo Emerson to express his philosophy of life. One way that Mr. Fisher chooses to demonstrate his generosity is by donating guest houses to military hospitals. These guest houses are appropriately named the Zachary and Elizabeth M. Fisher Houses, in honor of their benevolent patrons.

The Fisher House Program

The goal of the Fisher House program is to provide one guest house every year, located on the grounds of bases across the country, for each of the military services. The Fisher Houses will offer shelter to family members of military patients who need a place to stay, close to sick loved ones.

The buildings are planned to house up to 16 individuals who otherwise may have difficulty affording temporary lodging while their family member undergoes extended care. It is Mr. and Mrs. Fisher's desire to keep families together during medical emergencies or times of crisis, and to minimize the financial burden of that support. These houses will meet a great need and go a long way toward healing families while they wait for the medical cure of a loved one.

Each house, constructed and completely furnished by the Zachary and Elizabeth M. Fisher Armed Services Foundation, will cost approximately $394,000 and even include playground equipment. Each will consist of approximately 5,000 square feet and have a residential atmosphere. The dwelling will be divided into two stories with eight bedrooms, eight bathrooms, two sitting areas, a living room, family room, kitchen and nine parking spaces. The foundation plans to provide all utility connections, including telephone service.

The First Air Force Fisher House

The ground-breaking ceremony for the first Air Force Fisher House took place at Lackland AFB, Texas, on April 10, 1991. This occasion marked the culmination of almost a year of hard work and planning on the part of the Air Force, and the beginning of support that no hotel could ever provide.

At the ceremony, Lt. Gen. (Dr.) Monte B. Miller, the Air Force surgeon general, summed up how the Fisher Houses will enhance the mission of the Air Force Medical Service. "We in the Air Force Medical Service are charged with caring for the Air Force family in both peacetime and war," said General Miller. "We offer compassion to our patients who are often far from home. We

Artist's rendering of the future Fisher House at Wilford Hall USAF Medical Center, Lackland AFB, Texas.

The ground-breaking ceremony for the Fisher House at Lackland AFB, Texas, took place on April 10, 1991. Those wielding shovels are ***(from left to right):*** *Maj. Gen. (Dr.) Edgar R. Anderson Jr., commander, Wilford Hall USAF Medical Center; Lt. Gen. (Dr.) Monte B. Miller, Air Force surgeon general; Mrs. Elizabeth Fisher; Mr. Zachary Fisher; Maj. Gen. (Dr.) Vernon Chong, command surgeon, Air Training Command; Col. Harold W. Grinstaff, administrator, Wilford Hall; Capt. Kenneth R. Ivery, chief, facility management division, Wilford Hall.*

want them to know that, wherever they are in the world, the Air Force is home. The Fisher House embodies this philosophy of caring."

After the ceremony, which included brief speeches by Mr. Zachary Fisher and Maj. Gen. (Dr.) Edgar R. Anderson Jr., Wilford Hall USAF Medical Center commander, Mr. Fisher and his wife were given a windshield tour of vintage Air Force aircraft near the parade grounds at Lackland AFB. They also reviewed the troops at Wilford Hall. Mr. and Mrs. Fisher greeted each event with grace, and they demonstrated enthusiasm for the military and their families.

A second Air Force Fisher House is planned for Keesler AFB, Miss. The Army and Navy are also recipients of Fisher Houses, currently under construction. The Navy's are located near the following medical facilities: the National Naval Medical Center, Bethesda Md.; the Portsmouth Naval Hospital, Portsmouth, Va.; and the Balboa Naval Hospital, San Diego, Calif. The first Army site is at Walter Reed Army Medical Center, Washington, D.C.

The Fishers

The man making all of this possible, Mr. Zachary Fisher, is the president of Fisher Brothers Management Co., a noted real estate development firm in Manhattan. After spending 50 years in real estate and construction with his brothers, Mr. Fisher decided to devote more time to his country.

Mr. Fisher followed through with his decision by organizing and financing the *Intrepid* Sea-Air-Space Museum in New York City, housed in the aircraft carrier USS *Intrepid*, which served during World War II and the Korean and Vietnam Wars. The museum complex also contains a submarine and a destroyer, which Mr. Fisher salvaged, as well as numerous Navy, Air Force, and Army aircraft and related artifacts. For his efforts, Mr. Fisher was awarded the Volunteer Action Award in June 1988 by President Ronald Reagan.

Mr. Fisher and his wife, Elizabeth, established the Zachary and Elizabeth M. Fisher Armed Services Foundation, providing college scholarships to the children of servicemen killed in action. In addition, Mr. Fisher gave $25,000 to each of the families of sailors killed in the gun explosion aboard the USS *Iowa* in April 1989. In May 1989, the Department of Defense presented Mr. Fisher with the Defense Distinguished Public Service Award.

In all of his various civic and patriotic efforts, Zachary Fisher finds a staunch supporter in his wife, Elizabeth, who stands by his side and encourages him in each endeavor. Together, the Fishers accomplish great things because they are motivated by a love for their country and for the military.

Conclusion

Zachary Fisher considers himself the luckiest man alive because he is able to support the U.S. military. He believes that his gifts are a very small return for all who have fought and died for his freedom. However, the military families of this country are the truly lucky ones as recipients of the Fishers' generosity. The Fisher House program promises to benefit military families for generations to come.

Capt. Susan C. Loveland, project officer for the Air Force Fisher House program, is a budget analyst in the financial management division of the Office of the Air Force Surgeon General, Bolling AFB, D.C.

The *Digest* Interviews

Lt. Gen. (Dr.) Monte B. Miller

On May 22, 1991, the *Digest* interviewed Lt. Gen. Monte B. Miller, nearing the end of his tour as the 13th surgeon general of the Air Force and preparing to retire in August. General Miller evaluates five major areas that he defined in 1988 as the focus of his term: Air Force managed health care, accessibility of outpatient care, the quality of Air Force medicine, retention of critically short specialties and medical readiness training. He also gives his prognosis for the future of the Medical Service and leaves a final message for the people he was proud to lead.

Digest: To discuss the first major issue that you mentioned in 1988, where do you feel the Air Force Medical Service stands with regard to implementing the managed care program?

General Miller: We've come a long way, but we still have a long way to go. Our catchment area management demonstrations appear to be successful, but we knew it would take at least two years, and probably three, to have adequate information from those demonstrations. We don't have a good assessment of them as yet; nevertheless, they are effective and are doing what we want them to do. DOD has launched a coordinated care program that will encompass most of the concepts in our catchment area management program. We think we are well down the road. The basic principle, that we should be given the authority, responsibility and resources to care for our people within catchment areas of our facilities, has been subscribed to by the Department of Defense. In the future, we will see that as the way we take care of our people.

Digest: Regarding the next major issue, have you seen the accessibility of outpatient care improve in the past several years?

General Miller: Yes. We have made some real strides to improve accessibility. One of the keys to that has been the automated appointment systems. We are almost to the goal we set for automating those systems. We have not been as totally successful as we would like in adding primary care physicians and support for primary care physicians to the medical force, but we have made some progress. One sign of progress in that area is that we are having success, more in some major commands than others, in contracting emergency services, which frees up the health care providers for extended-hour clinics. That is a very effective improvement.

Digest: The third area of focus you mentioned was quality of care; have you seen any changes in the quality of Air Force medicine during your tenure as surgeon general?

General Miller: The quality remains good. I did not take on this job with the impression that the quality of Air Force medicine needed any significant improvement. In the three years that I've been in office, some measurements have been developed, measurements we didn't have before, which proved what I've always known—the quality of Air Force medicine is very high. We are proud of that subject. We are now spending more time and resources in measurements of quality, simply because it is mandated, both within DOD and in the medical world at large.

By any measure that we have today, the quality of Air Force medicine is outstanding. Our people know that we are in the lead, whether we measure by such criteria as neonatal deaths, neonatal birthrates, cesarean section rates, first-time pass rates on speciality board exams, malpractice rates adjusted for the *Feres* doctrine, or criteria set by the Joint Commission on Accreditation of Healthcare Organizations; we are in the lead in these and many other areas. The challenge to our people is to maintain that quality, and I have no anxiety that that isn't happening.

Digest: How does Total Quality (TQ) fit in with the Medical Service's maintaining high-quality care?

General Miller: Air Force medicine has always subscribed to the principles of TQ. Current ongoing methods are basically orchestrated through the major commands. We have resisted the attempt to set up a medical TQ pipeline, believing that it isn't really necessary because it is properly the providence of the major commanders. We certainly espouse the principles, and we have within our staff established a TQ "guru" to give us guidance. We are proceeding down that road. TQ is a natural for the medical service since we have always known who our ultimate customer is—the patient. The very nature of the practice of medicine mandates that we involve our customers in all levels of our administration.

Digest: Have you seen progress in the fourth major area of retaining personnel in specialties with severe shortages?

General Miller: We have a very clear idea of what

we need to do to retain more of our specialists. The challenge has been with the pay differential in civilian practice of some subspecialties, which has made it seem very attractive for the majority of those specialists to seek greener pastures after they complete their obligation. The recent pay revisions are a step toward reducing the magnitude of that differential, and although it's too early to be certain, from the data we have, it looks like it may have had some effect. Current retention rates in those areas are up from where they were a year ago.

We are also well aware, and the Congress is convinced, that providing more support positions is very important. Last year Congress gave us money to hire some 666 civilian spaces. That has not had as profound an effect as I'd like because about that same time we were faced with hiring freezes. Many of those positions grade out in such a way that it is difficult to retain people in the positions. Those numbers still do not bring us up to the support ratio we'd like, but it is a step in the right direction.

Certainly, more pay and sufficient support or ancillary help are the two biggest factors in retention. We need to continue our efforts in talking to our physicians about the advantages of Air Force life and the fact that we need them and we want them. We've launched a cadre program to try to reach out to the physicians. This program keeps them advised of our efforts toward making the practice of Air Force medicine more attractive, and it keeps us knowledgeable of their desires, needs and frustrations. We think that will pay dividends in the future.

Digest: Finally, Air Force medical readiness training has been tested twice during your tenure as surgeon general: first, in Operation Just Cause in December 1989, and more recently in Operation Desert Storm. How well did medical readiness training prepare Medical Service personnel for a wartime environment?

General Miller: It is obvious now that our people were very well prepared. It is equally obvious that now is a good time to look back and perhaps refine some of our training needs. That has been an ongoing process. We are trying to refine our training to the point where we combine our peacetime health care experience, which certainly translates into wartime health care, with specific wartime training. We're very pleased that the time we spent in training for chemical warfare and practicing caring for chemical casualties was not put to use, but that training in itself may have some return.

Digest: Do you see any other strengths and weaknesses in medical readiness training?

General Miller: We certainly have been impressed

that the more realistic the training can be, the better it is. We need to train by using the deployable medical sets and tailor that training to be as practical as possible. We've been very pleased with the deployable medical systems, and the standardization of those systems has paid off. We also are still trying to find the means to provide more hands-on training for our medical air evac personnel.

Digest: As you look ahead now, what is your prognosis for the Medical Service in the 21st century?

General Miller: The Medical Service will continue to be a high-quality service. It will continue to provide the care and compassion that the mission demands. If we're successful in providing resources and responsibility for managed care to facility executive teams, that will certainly enhance the success of our peacetime mission. We're blessed by having a lot of talent in our medical facilities. We really need only the authority to manage it as outlined and to provide some training on health delivery business practices.

We will undoubtedly continue to get more help than we necessarily need from those who are concerned about costs. We will continue to avoid duplication and continue to prove and justify that we are delivering our care effectively. We need to justify the fact that our Air Force mission demands that we maintain health care capability even in some of our small places where it may not be as cost-efficient as auditors would like.

Digest: What do you consider to be the Medical Service's greatest accomplishments in recent years?

General Miller: Well, our specialty training programs are second to none. Our support of the Air Force mission has been very gratifying. I believe that the focus of Air Force medicine on serving the patient is critical—it's very necessary to continue this. It is far too easy these days, with challenges such as the high cost of medicine, quality control standards and political issues, to lose sight of who is the ultimate customer. To maintain the proper focus, everything we do must continue to be directed toward the care of the patient.

Digest: Do you have any final message to give the men and women of the Air Force Medical Service?

General Miller: I leave this job with a tremendous appreciation for all of the members of the Medical Service. They are outstanding at what they do, and they accomplish what needs to be accomplished. They proved themselves, as you know, very recently in wartime situations.

I'd like to specifically recognize our Air Reserve Component medics. During Operation Desert Storm, both the Guard and Reserve people really covered themselves with glory, making up 95 percent or better of the air evac crews. In addition, those Guard and Reserve personnel who deployed with our air transportable hospitals were immediately part of the team. They worked well together. We just couldn't have had better support from our Guard and Reserve, both overseas and in the States. Taking care of the warriors' families at home is every bit as important as providing battlefield care, and those Guard and Reserve members who helped backfill at our medical facilities deserve lots of praise, recognition and appreciation.

Finally, it has been a true honor and privilege to work with all the talented men and women of the Air Force Medical Service. Thank you for your dedication to your work and to our work—caring for the patient. I wish each of you the personal and professional fulfillment in your Air Force career that I've been fortunate to experience in the last 30 years.

Digest: Thank you, General Miller.

Top Knife: A Cockpit Course in Medical Education

Eric A. Hehs

(Editors note: This article is reprinted with permission from General Dynamics' magazine, Code One.)

The lure of flying training missions in the F-16B has flight surgeons from around the country packing their little black bags and heading for Klamath Falls in southern Oregon—home of the Air National Guard's 114th Tactical Fighter Training Squadron. While the thrill of flying in high-performance fighter aircraft may be the initial attraction, the doctors will leave with much more than nine-G certificates and tie tacks.

The flights are part of a program called Top Knife. For two weeks, the flight surgeons will go through some of the same training that F-16 fighter pilots go through. They will also spend a lot of time studying the unique medical issues created by high-performance aircraft. They will go back to their home bases as fully qualified "fighter surgeons."

The Top Knife program is the brainchild of Lt. Col. (Dr.) William C. Fridinger, member of the Oregon Air National Guard and aid station commander of the 114th. With a full-time medical practice of his own in Klamath Falls, Dr. Fridinger was having a hard time meeting the medical needs of the base. "Because the 114th is a training base," explained Dr. Fridinger, "it has a full-time staff that is larger than most other ANG bases. There are also the students here full-time. Between my private practice and my work at the base, I was spread pretty thin. The base needed a full-time flight surgeon."

Interestingly, Dr. Fridinger's problems were solved by another problem. "I was hearing a lot of complaints from flight surgeons at other bases about the availability of flight time," said Dr. Fridinger. "In the meantime, we were averaging three or four empty back seats a day. You see, after their first few flights in the back seat of B models, students fly single seaters.

"It didn't make sense not to use those available seats," Dr. Fridinger continued. "Basically, we're trading empty back seats to get what we need, that is, a resident physician for the base. At the same time, we're providing top-notch medical training for ANG doctors. It's a perfect solution, one that doesn't require any increases in resources."

Dr. Fridinger had no problem convincing the right people that his solution was a good one. "I'll tell you how good of an idea it was," said Col. Steven "Slick" Harper, the base commander. "It's an idea that came to fruition in about two calendar years. If you know anything about the government, you know that two years is about 10 warp speed."

Applicants to Top Knife must be qualified flight surgeons in the Air National Guard. (Some exceptions have been made for interested candidates in other military branches.) To be a flight surgeon, doctors must complete a seven-week program in basic flight medicine. Top Knife candidates must have completed altitude chamber and centrifuge training, and they need endorsements from their medical commander and air commander. Doctors who successfully complete the course and pass a final written examination receive a full year's worth of continuing medical education credits through the Oregon Health Sciences University.

A typical day for Top Knife students begins at 7 a.m. in the 114th's medical aid station. There, they conduct sick call and provide medical support for all military personnel stationed at Kingsley Field. Later in the morning, they hit the books and videotaped lectures. Flight training and actual flight time follow lunch. The doctors receive at least five F-16 sorties during their two-week stay at the base.

Dr. Jim Koch, a flight surgeon for the 141st Tactical Fighter Squadron of the 108th Tactical Fighter Wing in New Jersey, is the 11th doctor to go through the program. "I can't think of anything more attractive than getting some F-16 rides," said Dr. Koch, who works as an anesthesiologist in Virginia, "but there's a lot more to this course than just getting to fly in the plane. I'm going to leave here with a greater understanding of the physiological problems unique to pilots of fighter aircraft.

"The program gives flight surgeons an opportunity to learn more about this relatively new subspecialty of medicine, a subspecialty that is getting more and more complex," Dr. Koch continued. "Courses like this are needed to keep doctors up to date."

Dr. Koch said the program will help him make informed judgments for pilots of advanced fighter aircraft. "For example," he said, "what is the best way for flight surgeons to deal with pilots with mitral valve prolapse

The Top Knife program is the brainchild of Lt. Col. (Dr.) William C. Fridinger.

[a congenital heart defect]? What level of G tolerance is necessary to fly fighter aircraft? Should everyone demonstrate the ability to pull nine Gs for 15 seconds, or is seven Gs for 30 seconds more appropriate? These issues are complicated. How can you even have an opinion unless you've actually been in a high-performance aircraft or a centrifuge? This program provides that experience."

The program also provides the latest and most comprehensive information on fighter aviation medicine. The medical academics were compiled by Maj. Randall Falk and Col. James Whinnery, two key players in setting up the program at the 114th.

"I've been reading at least six or seven hours a day," said Dr. Koch. "There is an incredible amount of material out there and this program brings it all together in one place. The program is a great way to disseminate information. It brings flight surgeons together to discuss these complicated issues. You come away with contacts you didn't have before, with a lot of material for your own files."

Coursework is divided into medical and flying academics. The medical academics portion covers a variety of topics: aeromedical and physiologic aspects of acceleration, G-induced injury to the cervical vertebral column, cardiovascular considerations in fighter aviation, high-G measles, physical conditioning, centrifuge training, spatial disorientation, low-altitude task management, psychological factors, thermal stress, toxicologic and radiation hazards, and advanced G protection.

The flying academics portion exposes the doctors to flight operations and flight training. They are given an overview of the F-16 and the ins and outs of checklist procedures and procedures for ground egress and ejection. The doctors then don their flight gear and accompany their instructor pilot on regular training missions. In these missions, the doctors gain a better understanding of the stresses involved in aerial combat. They must perform specific tasks during these flights. Depending on their experience, they initiate air-to-air engagements, perform instrument landing approaches, and fly barrel rolls. The doctors get a firsthand feel for fighter aviation. They also get to work with pilots away from any examining room.

"I'm getting to talk to fighter pilots coming from F-4 units that are getting ready to convert to F-16s," said Dr. Koch, whose own unit will eventually convert from F-4s to F-16s. "I get a chance to ask them what they think about things like the recommended exercise program and centrifuge training. It helps you solidify your opinion."

The program, by design, alters the usual relationship between doctor and pilot. "As a matter of fact," explained Dr. Koch, "we get graded by the instructor pilots on things like situational awareness and G tolerance. The grades may not carry the same weight as they would with a student pilot whose career may hang in the balance, but they do focus your attention on the pilot's perspective."

Empathizing with fighter pilots is a first step in changing a normally difficult relationship. "From the pilot's perspective," explained Dr. Koch, "there's not a positive side in having to go see a doctor. The best thing that can happen is that the doctor will tell the pilot that he can keep doing his job. For this reason, the pilot-doctor relationship is naturally adversarial. I think this program is helping to change that."

Breaking down barriers between flight surgeons and pilots, at least for Colonel Harper, is one of the more important aspects of the program. "Back in 1972," explained Colonel Harper, "I was stationed in New Mexico. We got a call one night to go to Thailand on short notice. So we packed up the whole squadron. A flight surgeon named Tom—I don't remember his last name—went with us. He was a guy who lived with us and flew with us. He was a good physician and a pretty good backseater in the F-4. I was impressed with that experience, and I never forgot it.

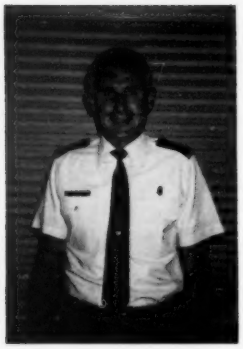
"As the years rolled on, we got away from that friendly relationship to a point where it seems that we're on opposite sides of a fence. And that wasn't my experience in Thailand in 1972.

"We have a chance here to give doctors formal flight training and to build a little camaraderie between the pilots and the doctors. When the docs go home, they're going to be formally trained. They will have lived with a fighter squadron for a couple of weeks. And we're going to have a much better medical system in the Air National Guard. I'm convinced of this. Best of all, it costs the country nothing."

Eric A. Hehs is the managing editor for General Dynamics' magazine, Code One, *in Fort Worth, Texas.*

Dr. Jim Koch (right) is the 11th doctor to go through the program.

Where Were You Whe



Col. Carl W. Haveman, DC

During December 1990, we who were assigned to the advanced contingency mobility unit at Wilford Hall USAF Medical Center, Lackland AFB, Texas, believed that deployment orders might arrive any day. I hoped the orders would come after the holidays.

The bell rang mid-morning on Jan. 9, bringing to an abrupt halt my involvement with the medical center's biannual Health Services Management Inspection. The following 18 or so hours were extremely rushed, including briefings with the inspectors, final packing of my mobility bag, and discussion of family business with my wife. We didn't know about the transportation glitch that would send me back home after reporting for outprocessing the next day. I was on telephone alert for the next three days, reported for final outprocessing on Jan. 13, and departed from Kelly AFB on Jan. 14 in a chartered Boeing 747.

We received royal treatment on the flight to RAF Upper Heyford. After sleepily inprocessing for what seemed an eternity, we were transported to our final destination, the 870th Contingency Hospital at RAF Little Rissington. We were the first 265 of a staff that would grow to 2,000 in the next few weeks.

Advanced planning and outstanding teamwork paid off. A 15-chair dental service was operational within 48 hours at four separate operating locations. The hospital with its 1,500 beds was ready within 10 days. The next six weeks seemed like six months because we were on 12-hour rotating shifts. I found the new environment and uncertain responsibilities stressful. Although we were thankful for the military success that gave us very few patients, the lack of patients was sometimes a problem. Our 94 dental personnel used the time to provide routine cleanings and restorative care to more than 500 patients and hospital personnel.

Also to occupy time, hospital personnel received permission to take day trips touring the United Kingdom. The most enjoyable and inspiring event for me was a trip with the senior hospital staff to the 806th B-52 bomb wing at RAF Fairford where I was allowed to send a message from the 870th dental service to Saddam on a 500 pounder!

After it was apparent that the war would soon be over, it seemed like the word to close the hospital would never come. When the word finally came, I'm sure that we established a new record for putting such a large operation into mothballs. I know we all returned home with a sense of pride that we had fulfilled our mission and that we would have accomplished a more demanding one had the need arisen.

Col. Carl W. Haveman is the deputy director of dental services, Wilford Hall USAF Medical Center, Lackland AFB, Texas.

A1C Richard C. Fry

Finding the ideal site for an air transportable hospital (ATH), especially in wartime, is just as challenging as setting up the hospital. The location must not only be mission-compatible but also responsive to the individuals and area it supports. When the 354th ATH deployed from Myrtle Beach AFB, S.C., we had six long months ahead of us to discover the meaning of that statement.

hen the Storm Broke?

Capt. Fred L. Nelson, MSC, MSANG

We arrived in Saudi Arabia during the first few weeks of the crisis. The temperature was in the triple digits, and our emotions were running just as high. The Gulf Crisis continued to escalate, and all we could do was wait for the inevitable. Before the war ever started, though, we fought one of the greatest battles ever—not with Saddam Hussein, but with nature.

When we arrived in the desert last September, officials told us that the extremely hot weather was nothing compared to the area's high temperatures in July. We were also briefed that the area had not received any measurable rainfall in almost a year. In fact, it was months before we even saw a cloud in the sky.

Finally, at the end of December, the monotony was broken by a single drop of rain. At first it didn't seem possible, but as the rain continued, everyone rejoiced. For the first time in over a year, a steady rain was falling over the parched, middle-eastern land. The spectacle lasted only five minutes, but it was a welcome interlude.

It rained next just a few days before the air war began. This time, the rain was far from welcome. Typically, the area experiences three to six inches of precipitation per year. For 1991, it all seemed to fall in one day! It rained for hours and hours, and we realized too late that our hospital was built at the bottom of a small hill. Within minutes, water started creeping into the tents, under the floors. The sand in our area was just about as permeable as concrete, and it didn't absorb. In a short time, our hospital became one gigantic water bed.

We eventually got the situation under control through teamwork and quick thinking—not to mention a portable wet-vac. Who would have thought a wet-vac would be a precious item in the desert? Luckily, there were no patients in the ATH at the time. We "sucked up" at least 400 gallons of water that day and the desert sand is probably still soaking in some.

A1C Richard C. Fry is a medical service specialist, medical/surgical ward, 354th Medical Group, Myrtle Beach AFB, S.C.

As the director of aeromedical evacuation operation at King Khalid Military City, Saudi Arabia, my days were often long and busy. The Aeromedical Evacuation Control Element (AECE) was operational 24 hours a day and manned by representatives from all of the different components, active duty, Guard and Reserve. Some personnel came from as far away as California to contribute to the war effort. The AECE was tasked with command and control of air evacuation crews and with directing the on-load and off-load of patients.

A typical day in Saudi Arabia began at 5 a.m. It was often cold and windy that early in the morning. At 6:30 a.m., pickup was made for the 10-mile drive to the airport, and a shift change was accomplished at 7:00 a.m. Each day, scheduled C-130 flights picked up and dropped off patients from within the theater. There was also usually a strategic C-141 mission to Germany. The schedules were staggered, but they all seemed to overlap.

The most complicated missions were the strategic Germany missions. A message would arrive during the night that a mission was on for the next day. Scheduled patient loads ranged from five to 25 litter patients and from 15 to 30 ambulatory patients, but the numbers always increased. Our largest load was more than 105 patients! Loading conditions varied; it was often accomplished in rain, dust storms and even Scud alerts. Never a dull moment!

The experience of being in Saudi Arabia was one that I will never forget. The bottom line for me was that a peaceful peoples' lives had been completely turned around. I considered it an honor to be part of the effort which made the statement, "That is enough. This won't be tolerated."

Capt. Fred L. Nelson, 183rd Aeromedical Evacuation Flight, Mississippi Air National Guard, also works part-time as a civilian flight instructor.

Col. Paul W. Terrell, MC, AFRES

"Doc, it's your reserve unit on the telephone," were the words spoken by my receptionist, but the words written on her face told the whole story.

It was 3:30 p.m. on Friday, Jan. 25, 1991, just a couple of hours until the end of the work week. My entire life changed in a moment. Although a reservist knows that the call can come at any time—the checklists are reviewed regularly, the contingency plan for the family is up-to-date—the reality of the actual summons still brings excitement, a little trepidation and a lot of the unknown.

In the next hour, a busy solo practice, including medical ophthalmology, civil aviation medicine and family care, closed. The local radio station and newspaper were given prepared statements for the public. The effect on me personally, leaving my small rural community, was as dramatic as it was on the citizens. The practice had been open for more than 25 years, and some of the patients were children whose parents I personally delivered.

In a short time, I would be driving almost 1,000 miles to Offutt AFB, Neb., from Hillsboro, Ohio. Although unknown at the time, my wife, also a reservist with medical skills, would be activated and deployed to Saudi Arabia in the next few days.

On the morning of Jan. 28, the dining hall at the Erhling Bergquist Strategic Hospital, Offutt AFB, Neb., was packed with excited, newly-activated unit members, about 100 in all. As commander, it was a great thrill to hear the cheer when I asked, "Are you ready?" We were ready, willing, trained and bringing with us maturity and experience.

Rapidly changing roles, from a self-employed, solo physician in a rural community to a commander of a Reserve medical unit deployed to backfill at one of the largest and most modern Air Force hospitals, promptly steepened my learning curve. Without the skillful coordination and understanding of the hospital management and staff, the transition would not have been as smooth or as painless as it was.

Now, as the dust of the Storm is settling and almost all of the 28th Medical Service Squadron's activated personnel have been returned to civilian status, there has been time to rethink goals, the future, retirement. The satisfaction of Air Force practice, along with excellent pay and retirement benefits have made me opt to remain on active duty for the next several years. This is a big step, but at age 55, I am starting a new career, and the family and I can hardly wait!

Col. Paul W. Terrell, commander, 28th Medical Service Squadron, Offutt AFB, Neb., practiced civilian medicine in Hillsboro, Ohio, and is now accepted for active duty to Osan AB, Korea.

Look Out Rockettes! Air Force "moppets" entertain the troops during a holiday celebration.

SMSgt. Billie J. Hutson II

On Jan. 22, 1991, I was deployed to England along with 267 other medical center personnel. Our mission was to provide joint medical support to the 870th USAF Contingency Hospital, a 1,500-bed wartime hospital located at RAF Little Rissington.

Upon landing at RAF Upper Heyford, we were processed into the United Kingdom and bussed to RAF Fairford for billeting. The base was overwhelmed with the large number of people, to say the least. You could expect to sleep wherever they could fit a cot. People slept in overcrowded houses, the gym, mobile office trailers and even in the abandoned base clinic, which affectionately became known as the "Kennel."

After arriving at Little Rissington, I was amazed at the cooperation and number of Biomedical Equipment Technicians (BMETs) who were deployed from all over the world. In addition to two clinical engineers from Keesler AFB, Miss., I and 48 other BMETs from numerous Air Force bases were given the task of providing total maintenance support for the Air Force's largest wartime contingency hospital.

During the following weeks, this elite group of BMETs installed 14 radiographic/fluoroscopic X-ray systems, and we installed dental equipment at a satellite dental clinic located at RAF Fairford. We also constructed furniture for dormitory residents; repaired dorm washers, dryers and microwaves; and built a cross and podium for the hospital chapel. Our great sense of unity and purpose led to the design and creation of the 870th Contingency Medical Equipment Repair Center sign proudly displayed in front of our maintenance shop.

I am honored to have served with such a tremendous group of BMETs in support of Operation Desert Storm; however, the return flight home was undoubtedly the highlight of my deployment. When we landed in Bangor, Maine, for a refueling stop, we were greeted as returning heroes. We were received with outstretched hands, hugs, cameras flashing and autograph seekers, all of which touched the bottom of our souls. This show of patriotism renewed my personal sense of pride in serving as an American military member. The best welcome was yet to come—that was at home with waiting friends, relatives and loved ones.

I will fondly remember my deployment to the United Kingdom because of the friends I made, the experiences I had, and the rekindling of Americanism that I witnessed.

SMSgt. Billie J. Hutson II is the superintendent, Southeast Medical Equipment Repair Center, Keesler Technical Training Center Medical Center, Keesler AFB, Miss.

Members of the 870th Contingency Medical Equipment Repair Center designed this sign at RAF Little Rissington to represent the united mission of Air Force personnel from eight different bases.

Capt. James P. Wilson, MSC

Participating in Operation Desert Storm was a personally rewarding experience. That's not intended to sound facetious, nor am I a warmonger. But the war gave me the opportunity to actually test, not simulate, the various skills and lessons that all medics practice during years of readiness training, CMRTs, CPR classes and REFORGER exercises. I also had the good fortune to be in the right place at the right time. I was able to save a life in a one-on-one situation.

I deployed late in September 1990, as part of the 836th Tactical Hospital, to al Minhad AB in the United Arab Emirates. Our base was out in the desert like most of the others in the theater. The nearest city, Dubai, was

about 20 miles away, and was off-limits for the first few weeks. When travel to civilization was finally permitted, it was through the auspices of the local American Business Council.

Council members took a limited number of service personnel into their homes for a day's entertainment and a home-cooked meal. On Thanksgiving Day, I was one of the lucky few who were treated to an outing at a local beach that included a sumptuous turkey dinner. Several of the families had small children at the outing, including the Van Gendt family, whose one-year-old son, Arnout, was in a small playpen.

While the adults were visiting under a nearby cabana, Arnout was supposedly sleeping nearby. I wandered by his playpen on my way to the beach, glancing down as I passed. To my shock I saw that the child was turning blue, thrashing his arms and legs about, and obviously choking. Acting instinctively, I initially slapped him lightly on the back, but to no avail. I then did a modified Heimlich compression and checked his airway. I could see a small object in the back of his throat. Upon sweeping his mouth with my finger, I dislodged a small seashell. This still did not start his breathing. Fortunately, as I positioned him for CPR and began to administer the first breath, he let out a cry and started breathing on his own.

Needless to say, that was a most memorable Thanksgiving. The Van Gendts have become my good friends, and Arnout is healthy and happy. I don't remember thinking through the steps for any of my actions at the time, and I can only attribute my response to all the years of training and practice I had as a blue-suit medic. Even as an administrative type, not involved with direct patient care, I found that when the pressure was on, lifesaving training kicked in.

Capt. James P. Wilson is the director of medical information systems, 836th Medical Group, Davis-Monthan AFB, Ariz.

Lt. Col. Lynn E. Duffany, NC

It's truly amazing looking back on it now. In the auditorium sat 265 Wilford Hall USAF Medical Center personnel, hoping our classified location really was England. Hadn't we all packed warm clothes? Apprehensive and afraid of the future, we were already developing informal support systems. Everyone handled emotions differently. Yet, somehow, we felt as one; we felt privileged that we were the 870th Contingency Hospital advance team.

Before we knew it, we were landing. Even the morning sun and a warm 20th Tactical Fighter Wing welcome couldn't stop fatigue. Some of us stumbled onto people we'd known at other assignments, and some stumbled onto buses to catch another hour of shut-eye. It's a good thing a few people got sleep, or we'd still be there sorting out our mobility bags!

I had already seen RAF Little Rissington on a staff assistance visit in April 1989. The critical care hangar was undergoing major repairs, and a tangled web of beds, operating room tables and equipment lay piled in the middle of the hangar. It looked like a nightmare—

"Victory goes not only to the combatants and those who supported our flyers in the Persian Gulf, but to all blue suiters, civilians, family members and others left behind to provide both tangible and intangible support for those directly in harm's way. Everyone contributed! Every American, in their own way, can share in this victory."

—Gen. John Michael Loh
Commander, Tactical Air Command

and that's exactly the scene I recalled when they notified me of deployment.

Contingency hospitals first came about in the early 1980s based on a need to provide care for thousands of casualties in case of a massive European theater war. This setup requires patients to be processed through an aeromedical staging facility. When we arrived at Little Rissington, the challenge was to prepare 1,500 beds, supplies, equipment, training and policies, with just 27 nurses and eight technicians. Luckily, a medical TDY group from RAF Lakenheath had straightened out my earlier nightmare before we arrived.

Thankfully, additional teams rolled in before patients did. Soon, we were 2,000 strong, from more than 18 bases, and ready to care for 1,500 patients. Our skills, expertise, commitment and camaraderie were reliable, and we were grateful for the opportunity to prove it. We received 177 non-combat related patients over a three-week period, and we did an outstanding job! How do we know? Our patients told us so.

Today at Little Rissington, a plaque displays the names of all our grateful patients, engraved by their own hands. The plaque reminds those who may follow that patients were here during Desert Storm and were well-cared for. We learned many things, including things we'd do differently next time; but for now, we who were there are proud to say, "We did it!"

Lt. Col. Lynn E. Duffany is the chief of nursing services, 67th Medical Group, Bergstrom AFB, Texas.

MSgt. Gilda Cortez, AFRES

(Photo not available.)

On Jan. 29, 1991, I was activated from Brooklyn, N.Y., to the 842nd Strategic Hospital, Grand Forks AFB, N.D. When Operation Desert Shield began, I prepared myself and my daughter for any possibility; however, I was still shocked when I received the call. The week prior to activation, my employers granted me short-notice annual leave from my job as a New York telephone service technician, which allowed me to settle my last minute legal and financial matters.

The two-day drive to Grand Forks was uneventful, long and warm! The spring weather in February didn't last, though. Thank goodness for parkas and jumper cables. The natives of North Dakota claimed that it was a mild winter.

The morning of Feb. 3 brought approximately 25 Individual Mobilization Augmentees (IMAs), National Guard and Reserve personnel to the hospital. Another 40 Guard and Reserve members arrived the following week; we all were excited and ready to work. Now we were active duty, like legal aliens with our green cards. Although we had some problems with orders, pay and housing, the CBPO, the Finance office and Billeting helped to solve all of them.

World's Largest Sand Trap. Col. (Dr.) Alvin M. Cotlar, commander of the 833rd Medical Group at Holloman AFB, N.M., plays nine holes at a cleverly improvised golf course in Saudi Arabia.

The chief nurse, the superintendent of nursing services and the staff development officer took advantage of our group's mixture of experience and expertise, using us in all areas of the hospital. I was fortunate to be assigned to the nursing staff development office, which made use of my previous experience. My responsibilities included teaching CPR, Self-Aid and Buddy Care, orientation, and (would you believe it?) I became the hospital aerobics instructor.

I quickly became familiar with my base counterparts. Everyone worked hard to complete annual and quarterly reports and scheduled training. Many organizations and services made our transition smooth. For example, we augmented Red Cross volunteers who kept the hospital functioning. The whole group at the hospital and the base population became like a family.

Living in billeting was a real treat for me. There were three or four to a room, and we moved from one room to another often. Naturally, we had our differences, but we had one thing in common: the telephone. Our bills were high! After a short while, we all became friends, and the friendships we established while we were activated will remain.

During this crisis I learned that, for any situation that may arise, I feel comfortable knowing the IMAs and Guard and Reserve forces are trained and ready to join the regulars at short notice.

MSgt. Gilda Cortez, superintendent of nursing staff development, 842nd Strategic Hospital, Grand Forks, AFB, N.D., works as a New York telephone technician.

(Editor's note: Special thanks to all those who took the time to write and send personal Desert Storm vignettes. I wish we had the space to print them all! We are proud of your success.)

When Patient Care was the Name of the Game

Andrews ASF Expands into the Base Gym

Capt. Deborah Rossman Retzer, NC

For the first time on the east coast, and the first time in the country since Vietnam, a base gym was turned into a 250-bed aeromedical staging facility in just 72 hours. On Jan. 18, 1991, two days after the beginning of the Gulf War, Military Airlift Command (MAC) headquarters ordered the expansion of the 10th Aeromedical Staging Flight (ASF) at Andrews AFB, Md. With a combination of know-how and hard work, the 10th ASF staff did the job.

Background of the ASF

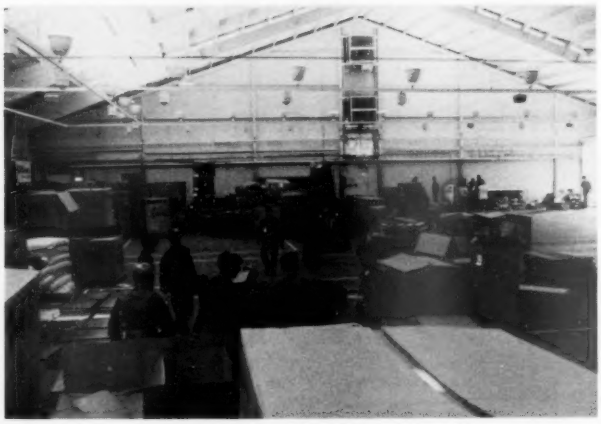
The 10th ASF is part of the unique USAF aeromedical evacuation system designed to move casualties from battle areas to hospitals overseas or in the United States. During peacetime, this mission is practiced daily by moving patients between medical treatment facilities.

The 75-bed ASF adjacent to Malcolm Grow USAF Medical Center is the primary receiving point for patients from Iceland, Cuba and Europe. Patients returning from the Middle East, such as those from Operation Desert Shield/Storm, fly to Germany for stabilization and then continue to Andrews where they are greeted by 62 personnel at the 10th ASF who transport them between flights, ensuring that all needs are met.

Expansion of the ASF

Contingency plans, in place for many years, call for using Andrews' West Side Fitness Center as a staging facility. When MAC gave the word in January, the great move was on. Medical technicians and other personnel removed the gym's equipment and began bringing in stockpiles of previously unused medical equipment, including blankets (some of which dated from the 1930s), field cots and lamps. They carried medical supplies such as portable suction machines and field lights. The 1776th Civil Engineering Squadron installed about 18 sinks along the wall of the gym as well as outlets at each of the beds.

One 88-bed unit was set up in the gym for minimal-care patients, and three 54-beds units were opened on indoor tennis courts. A fourth court was used as a staging area with folding chairs, litter stanchions and a television. Supplies were stored in racquetball courts. The base food service provided meals in a dining hall set up in the old Nautilus room, and the Nutritional Medicine



Department at Malcolm Grow USAF Medical Center took care of special diets—orders were made by data fax.

Meanwhile, at the original ASF, about 100 patients were arriving from Germany daily, and numerous CONUS missions took them on to other destinations. More than 1,300 patients came through the ASF the first week of Desert Storm. "There was a drastic increase in flights; all of a sudden, they were around the clock," said SSgt. David Lucas, a medical service specialist. "We were suffering from sleep deprivation, but we also felt we were doing something really important."

The ASF expansion did not stop with adding more beds and patients. Medications had to be ordered in stocks eight times the usual level, and arrangements for securing and storing narcotics had to be made. Six Defense Switch Network telephone lines were added for patient access, and eight private pay telephones were installed. This meant moving previous ASF lines to maintain existing numbers.

In three days, the contingency ASF was complete and ready for use. The staff personnel began to move patients into the gym along with all of the essential ASF materials, such as patient charts, medications, forms, operating instructions and protocols. After moving in, a team of nurses and medical technicians refined operations. They organized nurses' desks and dressing, intravenous and laundry carts.

Use of the Temporary ASF

Using ingenuity and improvisation, the staff began care in the temporary ASF. They used treatment boards to track wound care, special diets and therapies. To

prevent errors, they assigned a separate number to each bed and displayed patient locations and flight numbers on handmade patient status boards. A "remain overnight" (RON) board showed which severe psychiatric and intensive care patients would remain at the medical center for the night.

Extra help for the 62 ASF staff members began to arrive on Jan. 29. These additional Air Reserve Component officers, enlisted personnel, nurses, doctors and 37 medical technicians all oriented swiftly and became an integral part of the staff immediately. They helped with everything from typing flight manifests and patient lists to changing dressings, hefting litters, directing patient care and evaluating patient flight readiness. Navy, Marine and Army administrative personnel assigned as liaisons greeted arriving patients and assisted them in obtaining pay, identification cards and uniforms.

On the patient morale side, the Red Cross created a cheerful environment in the gym with yellow ribbons, balloons and flowers. To help patients follow the war, cable TV and a *Washington Post* box were installed. Also, Lt. Col. Marilyn Floro, commander of the 10th ASF, greeted flights at all hours and personally handled many patient concerns. Brig. Gen. Robert W. Poel, commander of Malcolm Grow USAF Medical Center, greeted most of the flights from Germany, welcoming the troops home.

Patients in the ASF

Between August 1990 and May 1991, about 25,000 patients came through the 10th ASF awaiting transportation to their final destinations. This included more than 7,500 patients from Operation Desert Shield/Storm. In September, the first patients from Desert Shield were diagnosed with asthma, heat exhaustion and back injuries. Later came orthopedic injuries and psychiatric patients unable to cope with the desert.

After the expansion was ordered in January, everyone prepared to receive battle injuries. Alternate ASFs were also established at McGuire AFB, N.J., and Charleston AFB, S.C., to insure maximum capability. Thankfully, the war was short and the casualties were few. The ones that came through Andrews included gunshot and shrapnel wounds, burns and broken bones. All of the victims of the Feb. 25 Scud missile attack passed through.

Very few of the ASF staff members had ever seen battle wounds. When the first victims of gunshot wounds and burns arrived a few at a time, staff members who had read about such injuries had time to learn how to do daily dressing changes and take care of other previously unknown details. As more and more casualties landed, all patients received the high-quality care they deserved.

Conclusion

As of May 15, the 10th ASF moved back into its usual location, and the Fitness Center and tennis courts were returned to Morale, Welfare and Recreation for renovation. The four-month expansion was an experience that the 10th ASF staff will never forget. It gave them an opportunity to apply their peacetime training in a wartime situation, which thankfully turned out to be far less devastating than predicted. Now they know that when circumstances call for a contingency posture, they can rise to the occasion with confidence and skill.

Capt. Deborah Rossman Retzer is an aeromedical clinical coordinator for the 10th Aeromedical Staging Flight at Andrews AFB, Md.

On preceding page, left and above, members of the 10th Aeromedical Staging Flight expand the ASF into the base gym.

Col. William C. Ocker: Changing the Course of Early Aerospace Medicine

Edward B. Alcott, Ph.D.

The 20th century, the age of the airplane, had its distinguished beginnings with early aviation pioneers who carefully explored various aspects of the new idea of flight. One of those pioneers was Col. William C. Ocker (1880–1942), known as the Father of Instrument Flying. In fact, 1990 marked the 60th anniversary of the Army Air Corps' adoption of instrument flight instruction as advocated by Colonel Ocker.

In 1912, Colonel Ocker joined the aviation section of the Signal Corps where he remained for the rest of his military career. He began his career as a corporal in aviation mechanics, developing an intense interest in flying. Colonel Ocker spent his off-duty hours lending mechanical expertise to the Curtiss Company Flying School, and they appreciated his help so much that they taught him how to fly. Ocker qualified for a pilot's license from the Aero Club of America in 1914, and thus became one of the elite, a flying sergeant.

Later in his career, William Ocker's innovative work with instrument flying made flying safer. According to Ocker, early pilot training involved knowledge of the mechanical intricacies of the airplane rather than the human factors of flying. In fact, more American pilots died during World War I due to lack of flying knowledge and physical fitness than for all other causes combined (1).

Blind Flying Defined

Instrument flying, at first called blind flying, meant flying without being able to see the ground, either because of cloud cover, night flying or fog. Pilots had fuel and altitude gauges on some of the earliest planes, but no instrument displayed the orientation of the aircraft. This shortfall caused many pilot deaths (2).

One of the main problems of early aviation was the macho image of the pilots who believed their natural instincts were better guides than any instrument aids. Ocker noted that it was a sign of weakness for pilots to admit they needed instruments to fly. He recalled that expert pilots could "fly by the seat of their pants" in fine sunny weather, but not in blind flight conditions (3).

In this era of open cockpits, an aviator lost in fog was at the mercy of his senses to find his way. A pilot's sense of equilibrium was greatly affected during blind flying conditions; he did not know if he was flying at an angle, upside down or horizontally. The loss of this equilibrium or balance was easily demonstrated to pilots by blindfolding and rotating them on a Jones-Baranay

*(**Left**) Col. (then Capt.) William C. Ocker poses in the foreground of a Douglas O-2K observation aircraft. (**Above**) Capt. Ocker (right) and 1st Lt. Carl J. Crane get ready to demonstrate blind flying devices at Brooks Field in 1929. (**Right**) Capt. Ocker uses a prototype to explain his invention, the Ocker box.*

rotating chair or on a stool, gradually reducing the speed of rotation. Even after stopping the subjects' rotation, their surroundings appeared to rotate in the opposite direction for a while. No one was ever able to give the correct direction and rate of a turn while blindfolded. The resultant dizziness is known as vertigo, a form of spatial disorientation (3).

An aviator caught in fog, suffering from vertigo would often spin into a crash. Ocker was one of the first to point out the lack of visual cues and pilot disorientation as major causes of aircraft crashes. He proved conclusively that the pilot's senses could not be relied upon under blind flying conditions (4). Ocker remarked that flying blindly without instruments showed exactly the same disregard for scientific assistance as a physician discarding the microscope, the X-ray or laboratory studies (1).

Blind Flying Studied

The science of instrument flying can be traced to 1918 when Dr. Elmer A. Sperry invented a "bank and turn indicator." This instrument was designed to serve as a stabilizer for the magnetic compass on seagoing vessels. Ocker, given one of these early devices by Dr. Sperry, tested it for airplane use and learned that in addition to its original purpose, it could be used to safely turn 180 degrees, get out of fog while remaining parallel with a given course, and return to a starting point. Nevertheless, many years passed before Ocker had the confidence to climb or glide through fog (1).

Ocker's experience with pilot disorientation a year later convinced him of the need for instrument flying. While flying with Brig. Gen. William "Billy" Mitchell, Ocker noticed oil dripping onto one of his shoes from a leak in the oil system. As General Mitchell established the airplane in a right turn, Ocker stooped over to remove the oil. He experienced the clear sensation that the plane rolled left and then slowly entered a left turn. However, upon resuming his upright position he noted, much to his surprise, that the plane was flying on a straight and level course. For the next seven years, Ocker investigated pilot disorientation (3).

Blind Flying Overcome

Flight surgeons were already aware of pilot disorientation and vertigo, but they were unable to offer solutions to the problem. Ocker came up with an answer by inventing a device later called the Ocker Box. The box contained a bank and turn indicator, a compass and a flashlight. The entire device could be mounted on a Baranay chair. When a subject viewed the instruments in the box while the chair rotated, the instruments indicated the correct movements even though these movements were at odds with human senses. This concept when used on an airplane, permitted blind flying in adverse weather conditions, thus establishing the importance of instrument flying (2).

Ocker first developed his box in 1926 when taking a routine physical examination while stationed at Crissy Field, near San Francisco. He reported to his flight surgeon, Capt. David Myers, who tested him for vertigo. Ocker failed the test on the Baranay chair but quickly asked Myers if he could repeat the test within the hour. With his box, Ocker passed the same test with no errors. Myers became deeply interested in Ocker's invention and subsequently wrote several medical articles about vertigo, pilot disorientation and the Ocker Box (3).

Shortly after inventing his box, Ocker patented the combination of revolving chair, view box and the in-

struments as a device for instruction of pilots and students. He also requested a patent on the combination of orientator, hooded cockpit and instruments. These patent rights were assigned to the U.S. government. In appreciation, the U.S. government awarded Ocker $1,000 for the invention of his blind flying training device.

Instrument Flight Training

Next followed a period of intensive instruction and demonstration of the box to pilots, students and other interested individuals. Ocker mentioned in his notes that it was still difficult to convince many older pilots of the correctness of his findings. Nevertheless, he noticed that pilots who had once been trapped in fog or blind flying conditions were enthusiastic about the new method.

To prove his faith in blind flying, Ocker, with a safety observer, successfully piloted the first covered cockpit plane with only instruments as his guide. This historic flight took place on June 24, 1930, from Brooks AFB, Texas, to Scott Field, Ill., a trip of about 900 miles (1).

By 1929, The Hancock Foundation College of Aeronautics at Santa Maria, Calif., started the first class in blind flight. The faculty of the college was anxious to determine the effect of instrument flight instruction upon pilots who completed conventional flight training. After four years of successful trials, the college asserted that every commercial aviation school course should include at least 50 hours of instrument training. This training would help eliminate the false impression that a pilot could fly under any or all circumstances by relying only on the sense of balance. Instrument flying instruction started in the Army Air Corps at Kelly Field, Texas, in 1930. By 1934, blind flying instruction was routine at both Kelly and Randolph Fields (3).

According to Lt. Carl J. Crane, who met Ocker at Brooks Field in 1929 and became his right-hand man, Ocker was obsessed with teaching instrument flying and convincing unbelievers of the practicality of his invention. Indeed, Ocker's instrument invention became the most controversial piece of machinery in the old Air Corps. Lieutenant Crane said that many of Ocker's contemporaries and some of his superiors could not face up to his discovery. He was frequently reviled by some while others tried to steal his thunder. His normal duties suffered, and in desperation, his superiors transferred Ocker to the Air Corps Primary School at Brooks Field, Texas, in 1929 (5,6).

Lieutenant Crane and Colonel Ocker conducted many blind-flight studies and taught aviators instrument flying techniques at Brooks. They received strong support from the flight surgeons at the School of Aviation Medicine* and exchanged ideas and findings on a regular basis. Their research led to the world's first book on instrument flight, *Blind Flight in Theory and Practice* (5,6). Published in 1932, the book discussed full panel instrument procedures and radio flying.

A group of surgeons receives instructions in 1932 about using the Ocker box to teach instrument flying.

Conclusion

Initially, instrument flight training within operating units was irregular and depended on the interest of the commander. It was not until World War II that instrument flying was firmly established in the military. Ocker's early efforts in instrument flight instruction were duly honored when Orville Wright wrote in 1934 that Colonel Ocker was "the greatest missionary of instrument flying [and] . . . in his campaign of education has had more influence in bringing about the use of instruments than any other person" (7). Official recognition followed many years after Colonel Ocker's death when, in 1984, the Instrument Flight Center at Randolph AFB, Texas, was dedicated to him.

*This institution established for training flight surgeons, now called the School of Aerospace Medicine, is part of the Human Systems Division of the Air Force Systems Command located at Brooks AFB, Texas. Human factors in flying are investigated here, and many remarkable breakthroughs have been made over the years. The institution's research and development efforts in aviation medicine have contributed much to the advance of aviation in general.

Edward B. Alcott, Ph.D., is the chief historian for the human systems division at Brooks AFB, Texas.

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NEW AIR FORCE SURGEON GENERAL—*President Bush has nominated Maj. Gen. (Dr.) Alexander M. Sloan for promotion to the grade of lieutenant general and selection as the new Air Force surgeon general. Upon confirmation, General Sloan will succeed Lt. Gen. (Dr.) Monte B. Miller, who is retiring Aug. 1, 1991. General Sloan is currently the command surgeon of the United States European Command (USEUCOM) at Stuttgart-Vaihingen, Germany.*

General Sloan was born in Clarksburg, W. Va., where he graduated from Washington Irving High School. He received his bachelor of science degree in 1955 from the University of Maryland. He attended the West Virginia University Medical School from 1955 to 1957, transferring to the University of Pennsylvania Medical School where he earned his doctor of medicine degree in 1959. He served a rotating internship at Philadelphia General Hospital from July 1959 to July 1960, subsequently entering the U.S. Air Force. General Sloan attended the primary course in aerospace medicine and was assigned as a flight surgeon at Kelly AFB, Texas. In 1963, he returned to the University of Pennsylvania for an internal medicine residency and nephrology fellowship.

In July 1966, General Sloan was assigned to the USAF Hospital, Tachikawa AB, Japan, initially as chief of the medicine division and the dialysis unit. In 1968, he assumed the duties of director of hospital services and deputy commander. He returned to the United States in July 1969 as chief of the renal service at Malcolm Grow USAF Medical Center, Andrews AFB, Md. He became chief of the internal medicine service in 1970 and chairman of the department of medicine there in 1972.

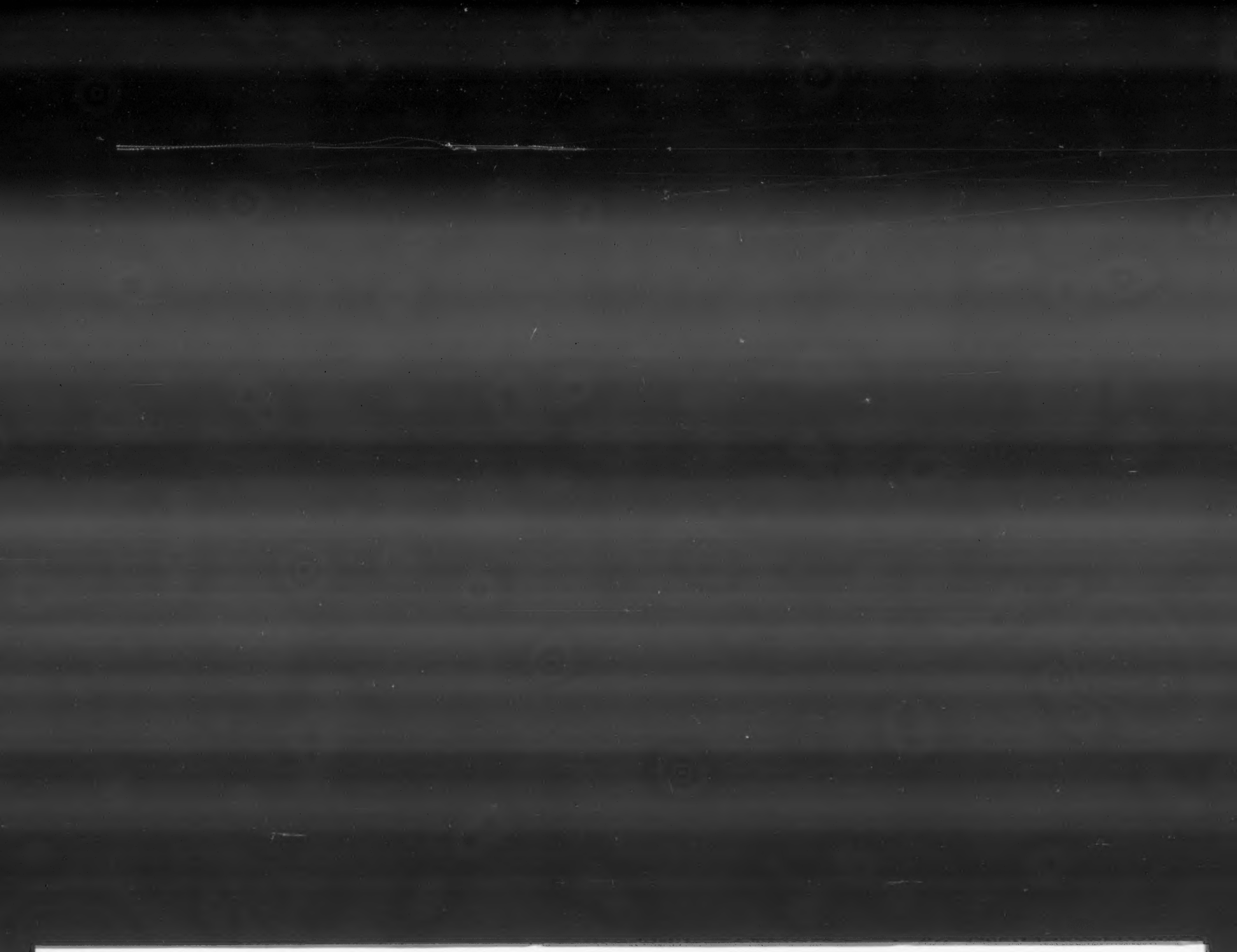
In July 1976, General Sloan was transferred to the USAF Medical Center Keesler, Keesler AFB, Miss., as the director of hospital services and deputy commander. From 1978 to 1980 he served as commander of USAF Medical Center Keesler. In 1980, he was assigned as deputy director of medical plans and resources for the Office of the Air Force Surgeon General. He was appointed director in June 1981. In August 1985, General Sloan was selected as deputy surgeon general, U.S. Air Force. He was appointed USEUCOM surgeon in October 1988.

The general is a fellow and former governor of the American College of Physicians. He is a member of the International and the American Societies of Nephrology, the National Kidney Foundation, the American Academy of Medical Directors, the Aerospace Medical Association, the Association of Military Surgeons of the United States, the Air Force Association, the Federal Health Care Executives Institute Alumni Association, the American College of Physician Executives and the Society of Medical Consultants to the Armed Forces.

The general is also a past treasurer, member of the board of governors and president of the Society of Air Force Physicians. In June 1968, he was certified by the American Board of Internal Medicine and recertified in October 1980. In October 1974, he was certified by the American Board of Internal Medicine in his subspecialty of nephrology.

General Sloan is a chief flight surgeon. His military decorations and awards include the Distinguished Service Medal, the Legion of Merit, the Meritorious Service Medal with one oak leaf cluster, the Air Force Commendation Medal with one oak leaf cluster, the National Defense Service Medal and the Vietnam Service Medal.

General Sloan is married to the former Carol Ann Berger of Newark, N.J., and they have three daughters: Barbara, Amy and Deborah.

A Capital Mission. The 363rd Medical Group from Shaw AFB, S.C., set up their air transportable hospital (ATH) in Washington, D.C., during Public Service Recognition Week, May 6–12. An estimated 70,000 people of all ages tramped through the hospital's tents downtown, curious to see the inside of a health care facility recently used in Desert Storm. "Most people didn't know how modern we are," said Lt. Richard N. Terry, MSC. Touring the ATH's surgical ward, laboratory, emergency room and other sections, opened many people's eyes to the importance of combat medicine. The hospital was also displayed for the National Victory Celebration on June 8.

***(Left)** A1C James M. Marks, laboratory technician, demonstrates a test in the ATH's lab for an interested tourist, Arja P. Adair Jr. **(Above)** Manning the surgical ward, members of the ATH staff (from left to right) TSgt. Mark A. Beck, medical technician; 1st Lt. Rodney J. Burch, staff nurse; and TSgt. June C. Jensen, medical technician, answer questions from Paul Ducharme and Rob Stober.*